

CDC Coffee Break: Communicating about Data



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July 12, 2011

National Center for Chronic Disease Prevention and Health Promotion
Division for Heart Disease and Stroke Prevention



Welcome to today's Coffee Break, presented by the Evaluation and Program Effectiveness team in the Division for Heart Disease and Stroke Prevention at the Centers for Disease Control and Prevention. Today's presenter is Rachel Barron-Simpson, from the CDC's Division for Heart Disease and Stroke Prevention. Rachel is a health scientist on the Evaluation and Program Effectiveness team.

*Note: Screen magnification settings may affect document appearance.

Disclaimer: The information presented here is for training purposes and reflects the views of the presenter. It does not necessarily represent the official position of the Centers for Disease Control and Prevention.

The information presented today is for training purposes and does not necessarily reflect the official position of the Centers for Disease Control and Prevention. So, let's get started with today's presentation. Rachel, the floor is yours.



Today I'll be talking about communicating data. And I just wanted to ask you, as an evaluator or epidemiologist, have you ever been asked to explain these terms to audiences such as policymakers, partners, or other stakeholders and had difficulty?

Traditional Ways of Communicating Data

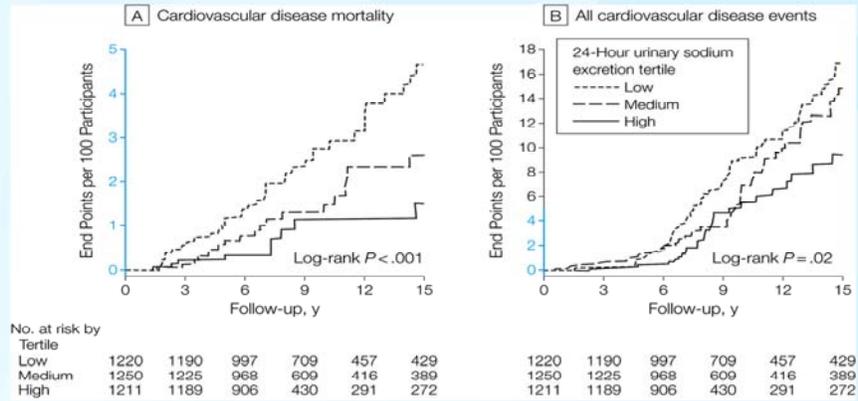
*“Reducing the sodium intake from the high to the intermediate level reduced the systolic blood pressure by 2.1 mm Hg ($P < 0.001$) during the control diet and by 1.3 mm Hg ($P = 0.03$) during the DASH diet. Reducing the sodium intake from the intermediate to the low level caused additional reductions of 4.6 mm Hg during the control diet ($P < 0.001$) and 1.7 mm Hg during the DASH diet ($P < 0.01$).”**

*Sacks FM, et al. *N Engl J Med* 344:3–10, 2001

Or read documents and presentations that traditionally display data in text?

Traditional Ways of Communicating Data

Figure 2. Kaplan-Meier Survival Function Estimates for Cardiovascular Mortality and All Cardiovascular Events



Stolarz-Skrzypek, K. et al. JAMA 2011;305:1777-1785
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JAMA

Or complex graphs such as these?

Communicating Data

- ❑ **Common barriers**
- ❑ **Audience**
- ❑ **Goals**
- ❑ **Tools**



Communicating or conveying basic information well is a skill that's learned by most. As scientists, we're trained to understand data and its related terms, and generally have no problems communicating this terminology amongst ourselves. However, when it comes to explaining data and terms to other audiences, we may experience some difficulty. Understanding exactly what information is important for your audience and presenting it in a way that is meaningful can greatly affect the understanding of the intended message.

Traditionally, we see data presented in published articles, complex charts, and graphs, as presented in the previous slides. In this Coffee Break, we will discuss some of the common barriers encountered when communicating data to audiences, things to consider when identifying your audience, and goals for communicating data, as well as exploring ways in which to better communicate.

Common Barriers to Communicating Data

- ❑ **Misinterpretation of data**
- ❑ **Inability to deliver the intended message**
- ❑ **Lack of interest in the topic**
- ❑ **Assumption that “data speak for themselves”**

Common issues with traditional messages, similar to those shown at the beginning of the presentation for communicating data, involve sending an unintended message because your audience interprets the data in a way that seems correct to them, or the message that you try to communicate is not received by your audience.

Traditional Ways of Communicating Data

*“Reducing the sodium intake from the high to the intermediate level reduced the systolic blood pressure by 2.1 mm Hg ($P < 0.001$) during the control diet and by 1.3 mm Hg ($P = 0.03$) during the DASH diet. Reducing the sodium intake from the intermediate to the low level caused additional reductions of 4.6 mm Hg during the control diet ($P < 0.001$) and 1.7 mm Hg during the DASH diet ($P < 0.01$).”**

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For instance, if we go back to the previous example, it appears the author wanted to convey a message about how sodium and diet relate to blood pressure. Based on the information in the text, the audience may not have been able to glean this at first glance.

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Some additional barriers are a lack of interest in the topic and that your audience tends to tune you out, or an assumption that data speaks for itself. So, now that we’ve talked about some common barriers, let’s explore ways to improve how you communicate data related to your audience, goals, and methods to visually convey your message.

Identify Your Audience



In order to communicate the correct messages around data, you want to begin by identifying your audience. So you should start asking yourself things such as, “What level of expertise do they have?” “What are their interests in the topic?” And, “Do they have a background in the subject area?”

Understand Your Goal

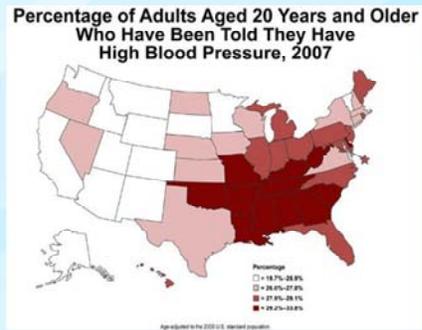
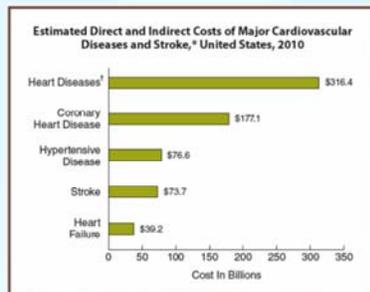
- ❑ **What message are you trying to convey?**
- ❑ **Why are you communicating this message?**
- ❑ **How much data do you need to meet your goal?**



Once we've identified our audience, we can now try to determine the goal of sharing this information. So, if we look back at the slide with the example text that I showed you a few seconds ago, the message we'd like to convey is that eating a healthy diet and lowering the amount of sodium consumed has an effect on blood pressure. It's important to communicate this to our audience because there's been a lot of messaging around sodium and high blood pressure, and we believe the results of this study could increase the knowledge base in this subject matter and inform decision making. We can assume that data from this study as well as supporting data from the other studies would help convey this message. And so, asking yourself, "What message are you trying to convey?" "Why are you communicating this message?" And then, "How much data do you need to meet your goal?"

Choose the Best Tool

□ Simple charts or maps



So, to visually display your data, you can use things such as bar charts to make comparisons or to show independent variables like the charts shown. Maps are useful as well when talking about things related to populations, because it's easy to highlight specific areas or regions. Some additional visual tools include pie charts, which are also good to use when showcasing parts of a whole or differences in proportion, and then line graphs, which show specific values and trends.

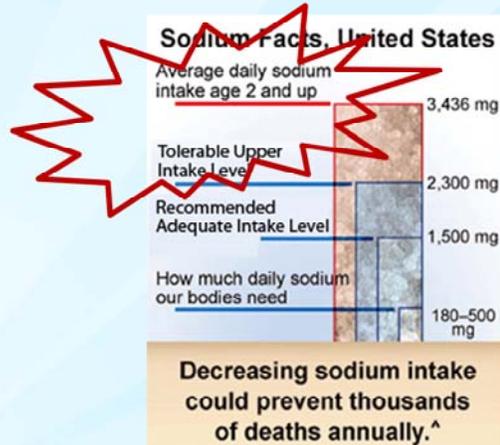
Choose the Best Tool

- ▣ Pictures or clip art



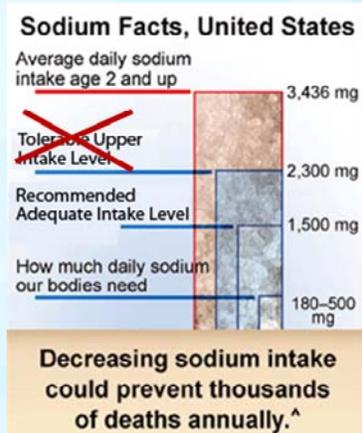
Pictures or graphics are good in capturing the attention of an audience when they make a statement. For instance, if you look to the picture on your left, you'll notice that the picture is trying to convey the message that there's a lot of sodium in bread. And if you look at the picture on the right, it sends a message that cigarettes cause lung disease.

Highlight Your Point



So the next thing you should do is try to highlight your point or place emphasis on your key message. So if you look at this graphic, the red bar indicates that the average amount of sodium consumed daily is well above the recommended amounts, which you'll notice are in blue. The recommended amounts and the actual amounts that people consume and the body needs are in blue. And so, highlighting this message in red draws the audience in and conveys a key point. And so we've highlighted it in red in this picture.

Highlight Your Point



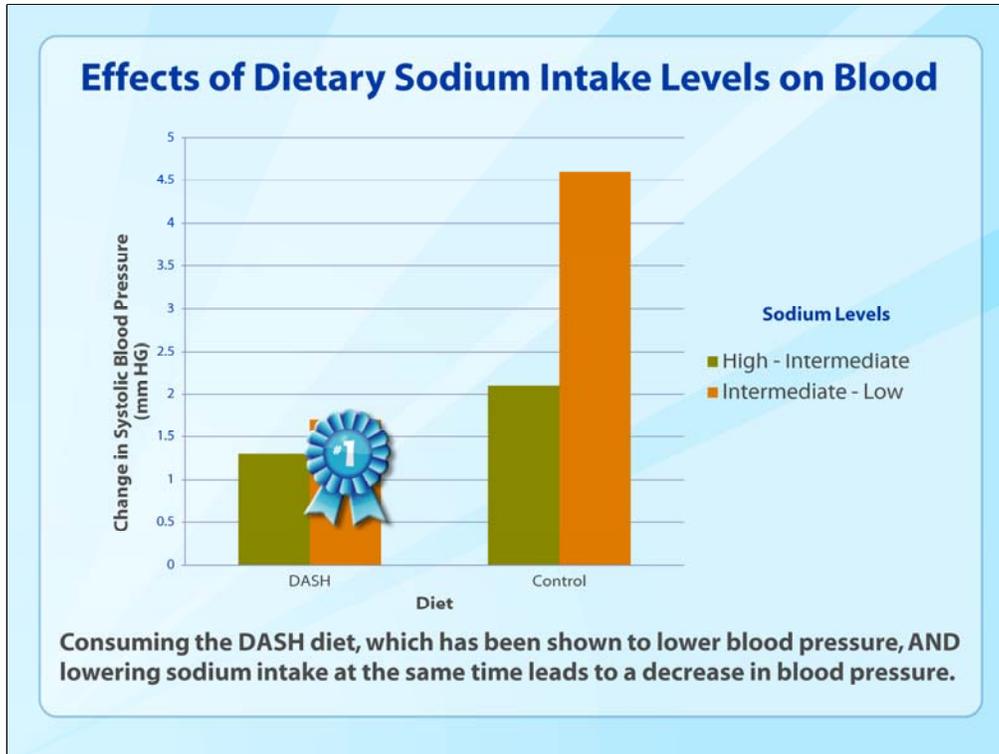
And if you look at it again, you can see that sometimes there's a lot of text, and removing text is helpful in conveying a clear message. And so, for instance, you could take out the tolerable upper intake level, which you'll see that's X'ed out in red to create a cleaner depiction.

Traditional Ways of Communicating Data

*“Reducing the sodium intake from the high to the intermediate level reduced the systolic blood pressure by 2.1 mm Hg ($P < 0.001$) during the control diet and by 1.3 mm Hg ($P = 0.03$) during the DASH diet. Reducing the sodium intake from the intermediate to the low level caused additional reductions of 4.6 mm Hg during the control diet ($P < 0.001$) and 1.7 mm Hg during the DASH diet ($P < 0.01$).”**

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So now that we talked about common barriers to communicating data and looked at ways to better communicate this data, let's go back to our text example and apply what we've learned.



So if my audience is a group of policymakers who are interested in knowing whether policy should be developed around sodium consumption, we can create this chart so that it conveys the message that, when consuming the DASH diet—which has been shown to lower blood pressure—and lowering sodium intake at the same time, it leads to a decrease in blood pressure. And so, we've taken that text and simplified it to show our picture and put a little blue ribbon on it to show that the DASH diet and lower sodium is the way to go.

Summary

- ❑ **Identify your audience.**
- ❑ **Identify your messaging goals.**
- ❑ **Choose visual representations of your data that are simple.**
- ❑ **Highlight key messages.**

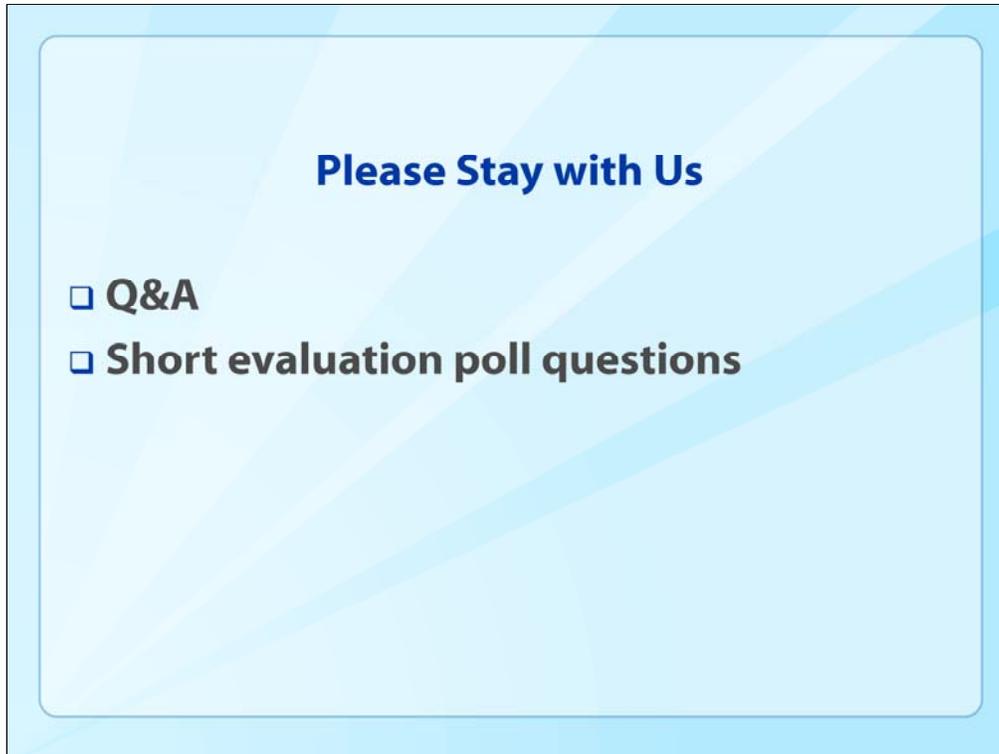
So, in summary, you want to remember to identify your audience, understand the main purpose for conveying your message related to the data you're presenting, keep your message simple, and make sure that you've limited the amount of text and selected the best visual depiction for your data. Keeping this in mind shall allow you to convey your data messages effectively.

Resources

- ❑ **Making Data Talk, preconference workshop at the 2010 Joint Conference of SOPHE and Prevention Research Centers Program**
 - www.sophe.org/Sophe/PDF/2010%20MY/Precon3.pdf

- ❑ **Communicating Data in a Visual Way**
 - <http://corporategeek.info/Communicating-Data-in-a-Visual-Way>

And here are a few resources for communicating the data.



Can you present qualitative data using some of the pointers you provided today?

Yes, you can present qualitative data using the pointers that I provided today. You can visually display this data by looking at some of the major themes and trying to depict them with pictures or clip art. For instance, if you look back at the picture that I showed with the bread and the sodium and the cigarette pack with the lung cancer, using pictures or clip art like that—that would show a major theme—would be very useful because you want the pictures to tell a story.

You talked about using graphics, charts, and graphs. Do you have any other suggestions if I want to limit the amount of graphics and use mostly text in my presentation?

Sure. I think that presenting text is okay as long as you limit the amount on each slide that you create and make sure that you're using terms that resonate with your audience. So, sometimes focusing on the visuals and showing key words or key points will work best when they're standing alone, but you want to make sure that people can understand exactly what you're saying in few words without having to refer to another reference.

How do you know what data to pull out to highlight? How do you make sure you don't distort what you're presenting and just present the information as a scientist?

Well, as I said before, you want to really take a look at who your audience is and make sure that you're providing a message that will resonate with them without inserting your own opinion and views and stance on that particular data, over-interpreting that data. So, I would suggest looking at your audience and then determining what part of the data would resonate with them in order to convey a message that will allow them to achieve whatever goal that they have for using the data.

Do you have any other tips for us on resources or places that you particularly like?

Google always works best. If you have trouble explaining some of the data terms yourself to a general audience, you might want to try Googling those particular words along with "communicating data" so that you can get a few pointers. And the few resources that I've provided are fairly good, and they help in communicating public health data as well.

Thank You

**If you have questions, please contact:
ddunet@cdc.gov**

For more information please contact Centers for Disease Control and Prevention

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